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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,097	11/02/2006	Eric Allain	10500.204-US	1746

25908 7590 10/26/2010

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EXAMINER	
MARX, IRENE	

ART UNIT	PAPER NUMBER
1651	

NOTIFICATION DATE	DELIVERY MODE
10/26/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Patents-US-NY@novozymes.com

Office Action Summary	Application No.	Applicant(s)	
	10/586,097	ALLAIN ET AL.	
	Examiner	Art Unit	
	Irene Marx	1651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 August 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *41-56* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *41-56* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The amendment filed 8/25/10 is acknowledged. Claims 41-56 are being considered on the merits.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 41-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al., of record, taken with Silver (U.S. Patent No. 4,409,329), Miller (U.S. Patent No. 4,330,625) and Bisgaard-Frantzen *et al.* (US 2004/0023349).

The claims are directed to a process of making ethanol by milling starch-containing material such as grain, liquefying the milled product with α-amylase, saccharifying the liquefied starch-containing product with glucoamylase and fermenting the saccharified material with a microorganism wherein the fermentation medium comprises at least one surfactant and a glucoamylase and in dependent claims additionally a cellulase or cellobiase or hemicellulase.

Each of Lee *et al.* and Silver teaches a fermentation process for the production of ethanol from starch- containing substrates. For example, see, e.g., Silver, col. 1, lines 27-35, wherein at least starch is a residue, treated with carbohydrate degrading enzymes and a surfactant. See, e.g., page 300, paragraph 5, respectively col. 1, lines 27-40, col. 3, lines 25-31 and col. 5, lines 7-48.

The references differ from the invention in that the source of the saccharified material is not a starch containing material such as barley, corn, milo or wheat as in claim 56. However, Miller *et al.* adequately demonstrate that the milling of grain followed by liquefying and saccharifying is old and well known in the art. See, e.g., Col. 3, lines 24-32. The reference

clearly states that saccharified material obtained is suitable to provide substrate sugars for the fermentation to ethanol. See, e.g., col. 1, lines 18-20.

The references differ from the claimed invention in the use of glucoamylase and acidic fungal alpha amylase as the enzymes used to hydrolyze carbohydrates. However, Bisgaard-Frantzen *et al.* disclose the use of acidic fungal alpha-amylase and glucoamylase in combination to hydrolyze carbohydrates for the production of ethanol from corn mash, which is derived from whole grain. See, e.g., Example 3. The AFAU per AGU appears to be at least 0.1.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to modify the process for producing ethanol of Lee *et al.* and Silver by using corn as the raw material and subjecting it to milling followed by liquefying and saccharifying as taught by Miller *et al.* and using the enzymes acidic fungal alpha-amylase and glucoamylase in combination in the process as suggested by the teachings of Bisgaard-Frantzen *et al.,* for the expected benefit of maximizing the yield of valuable ethanol from whole grains for industrial or pharmaceutical applications and for human consumption.

Thus, the claimed invention as a whole was clearly *prima facie* obvious, especially in the absence of evidence to the contrary.

Response to Arguments

Applicant's arguments have been fully considered but they are not deemed to be persuasive.

The crux of applicant's argument is that the Examples 1 and 3 of the instant application show that the use of a surfactant (SOFTANOL B 90 and BEROL 087, respectively) and a glucoamylase during fermentation results in a significantly greater ethanol yield than the use of a glucoamylase alone. Moreover, Example 2 of the instant application shows that the use of a surfactant (TRITON X100) and a glucoamylase during fermentation results in a greater ethanol yield than the use of a glucoamylase alone.

However, the claims of record are not directed to the use of the surfactants of the particular SOFTANOL B 90, TRITON X100, and/or BEROL 087 in conjunction with a glucoamylase, and a cellulase during fermentation as touted. The claims are directed to the inclusion of unidentified "at least one surfactant".

Therefore, these arguments are not persuasive of error in the obviousness rejection made.

The scope of the showing must be commensurate with the scope of claims to consider evidence probative of unexpected results, for example. In re Dill, 202 USPQ 805 (CCPA, 1979), In re Lindner 173 USPQ 356 (CCPA 1972), In re Hyson, 172 USPQ 399 (CCPA 1972), In re Boesch, 205 USPQ 215, (CCPA 1980), In re Grasselli, 218 USPQ 769 (Fed. Cir. 1983), In re Clemens, 206 USPQ 289 (CCPA 1980). It should be clear that the probative value of the data is not commensurate in scope with the degree of protection sought by the claim.

Therefore the rejection is deemed proper and it is adhered to.

No claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irene Marx whose telephone number is (571) 272-0919. The examiner can normally be reached on M-F (6:30-3:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Wityshyn can be reached on 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300 .

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Irene Marx/
Primary Examiner
Art Unit 1651